

<110> Ruben et al.

<120> ABC Transport Polynucleotides, Polypeptides, and Antibodies

<130> PT010P1

<140> Unassigned

<141> 2001-01-24

<150> PCT/US00/19736

<151> 2000-07-20

<150> 60/145,215

<151> 1999-07-23

<150> 60/149,445

<151> 1999-08-18

<150> 60/164,730

<151> 1999-11-12

<160> 21

<170> PatentIn Ver. 2.0

<210> 1

<211> 733

<212> DNA

<213> Homo sapiens

<400> 1

gggatccgga	gcccaaattct	tctgacaaaa	ctcacacatg	cccaccgtgc	ccagcacctg	60
aattcgaggg	tgcaccgtca	gtcttcctct	tcccccaaa	acccaaggac	accctcatga	120
tctcccgga	tcttgaggtc	acatgcgtgg	tggtggacgt	aagccacgaa	gaccctgagg	180
tcaagttcaa	ctggtacgtg	gacggcgtgg	aggtgcataa	tgccaagaca	aagccgcggg	240
aggagcagta	caacagcacg	taccgtgtgg	tcagcgtcct	caccgtcctg	caccaggact	300
ggctgaatgg	caaggagtac	aagtgcaagg	tctccaacaa	agccctccca	accccatcgc	360
agaaaaccat	ctccaaagcc	aaagggcagc	cccgagaacc	acaggtgtac	accctgcccc	420
catcccggga	tgagctgacc	aagaaccagg	tcagcctgac	ctgcctggtc	aaaggcttct	480
atccaagcga	catcgccgtg	gagtgggaga	gcaatgggca	gccggagAAC	aactacaaga	540
ccacgcctcc	cgtgctggac	tccgacggct	ccttcttctc	ctacagcaag	ctcaccgtgg	600
acaagagcag	gtggcagcag	gggaacgtct	tctcatgctc	cgtgatgcat	gaggctctgc	660
acaaccacta	cacgcagaag	agcctctccc	tgtctccggg	taaatgagtg	cgacggccgc	720
gactctagag	gat					733

<210> 2

<211> 2536

<212> DNA

<213> Homo sapiens

<400> 2

gctcacagcg	actgcgcgga	cgggttcctg	agtggAACat	ggcgacttgc	gccgaaatcc	60
tgccggagcga	gttccccgaa	attgacggac	aagtcttcga	ctacgtgacc	ggcgtcttgc	120
acagcggcag	cgcggacttc	gagtctgtgg	atgacctggg	ggaagctgta	ggggaactat	180

tgcaagaggt	gtccggggac	agcaaggatg	acgcggggcat	cagggccgtg	tgccagcgca	240
tgtacaacac	tctgcgtctg	gctgagccac	aaagccaggg	aaatagccag	gtgctactgg	300
acgcccctat	ccagttgtca	aagataacgg	agaactacga	ctgtggaacc	aaacttccag	360
gactgctaaa	gagggaaacag	tctctgacag	tgaatgcaaa	gaagttagag	aaggccgagg	420
ctcgacttaa	ggcaaagcag	gagaagcgct	cagagaagga	cacgctcaag	accagcaacc	480
ctctagtctt	agaagaggca	tcagccagcc	aggcaggcag	cagaaaggag	agtcgggttg	540
aatcatcttg	caagaacaaa	tcctatgatg	tgcgaattga	gaactttgat	gtgtcttttg	600
gcgatagagt	actgctggct	ggagcggatg	tgaacctggc	atggggccgc	cgttacgggc	660
tggtagggcg	gaatgggttg	gggaagacaa	cgttactgaa	gatgctggcc	acccgagtc	720
tgcggttcc	agcccacatt	tcctgctgc	acgttgagca	agaggttgct	ggagatgaca	780
ctcctgcccc	gcagagtgtg	ctggagagtg	acagtgtgcg	agaggatttg	ctacggaggg	840
agcgggagct	cactgcccag	attgctgctg	gcagggcgga	gggctctgaa	gctgcagagc	900
tggcagaaat	ctatgccaaa	ctggaggaga	ttgaggctga	caaggcacct	gccagggcat	960
cagtcattct	cgctgggctt	ggctttaccc	ctaaaatgca	gcagcagccc	acccgggagt	1020
tctcaggttg	ctggaggatg	aggetggccc	tggccccggc	cctctttgct	aggccagatc	1080
ttctgctgtt	agatgaacct	acaaacatgc	tggatgtcag	ggccatcctg	tggctggaga	1140
attacctgca	gacgtggccc	tccaccatcc	tagtctctc	ccacgaccgc	aacttcttga	1200
atgccatcgc	cacagacatc	atccacctgc	acagccagcg	gctagatggt	taccggggag	1260
actttgagac	cttcatcaag	agtaagcagg	agcggctgct	caaccagcag	cgtgaatatg	1320
aggcgcagca	gcagtatcgc	cagcacatcc	aggttttcat	tgaccggttt	cgctacaatg	1380
ccaacagggc	ctctcaagtg	cagagtaaac	tcaagatgct	ggagaagctg	cctgagctga	1440
agcctgtgga	caaggaatca	gaggtcgtaa	tgaagttccc	tgatgggttt	gagaagttct	1500
cgccgccaat	tctgcagcta	gatgaggtgg	atttctacta	cgatccgaag	cacgtcatct	1560
tcagtcgcct	ctctgtgtct	gctgatctcg	agtctcgcat	ctgtgtggtt	ggagagaatg	1620
gggctgggaa	gtctaccatg	ctgaagctgc	ttttggggga	cctggcacct	gttcggggca	1680
tcagacacgc	tcacaggaat	ctgaagattg	gctatttcag	ccagcaccat	gtggagcagc	1740
tggacctaaa	cgtcagtgc	gtggaactgc	tggcacgcaa	gtttcctggg	cggcctgagg	1800
aggagtaccg	tcaccagctg	ggtcgggtatg	gcatctccgg	agaactggcc	atgcgtcctc	1860
ttgccagcct	gtctgggggc	cagaagagcc	gagtggcctt	tgctcagatg	actatgcctt	1920
gccccaaact	ctacattctg	gatgaaccca	caaaccacct	ggacatggag	accattgagg	1980
ctctggggcg	tgccctcaac	aatttcaggg	gtggtgtgat	tctggtgtcc	cacgatgagc	2040
gctttatcag	gctggtgtgc	cgggagttgt	gggtatgcga	aggaggcggc	gtcaccctg	2100
tggaaaggagg	atttgaccag	taccgcgccc	tcctccagga	acagttccgc	cgccaaggct	2160
tcctctaggg	ccaccaggct	gaggactcgc	ccaggacatg	gactggctct	tcagaccctt	2220
ggggccaccat	gtaggccacc	actccaggcc	gtggacttcc	cccaacttgg	ggacagcctt	2280
attcccaaat	gtctctatcc	ttttgactgg	agcatcttct	gcacaacctt	gggagcccat	2340
ccaagggttg	gtgaggactg	gtctcccggg	ggtgggggtc	tgggggggtac	cctctggggg	2400
tatagattcc	cccactgccc	cagctctgac	tggaccccaa	gtggctgcta	tgtaaattaa	2460
atctctcccc	gcgtcaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	2520
aaaaaaaaaa	aaaaaa					2536

<210> 3

<211> 3635

<212> DNA

<213> Homo sapiens

<400> 3

tcgaccacg	cgtccgccc	agttgttatt	ctggacgagc	ctacggctgg	cgtggatcct	60
gcttcccgc	gcggtatttg	ggagctgctg	ctcaaatacc	gagaaggctc	cacgctgac	120
ctctccaccc	accacctgga	tgaggcagag	ctgctgggag	accgtgtggc	cgtgggtggca	180
ggtggccgct	tgtgctgctg	tggtcctcca	ctcttcctgc	gccgtcacct	gggtcctggc	240
tactacctga	cgtgggtgaa	ggcccgcctg	ccccgacca	ccaatgagaa	ggctgacact	300
gacatggagg	gcagtgtgga	caccaggcag	gaaaagaaga	atggcagcca	gggcagcaga	360
gtcggcactc	ctcagctgct	ggccctggta	cagcactggg	tgcccggggc	acggctgggtg	420
gaggagctgc	cacacgagct	ggtgctgggtg	ctgccctaca	cgggtgcccc	tgacggcagc	480
ttcgccacac	tcttccgaga	gctagacacg	cggctggcgg	agctgaggct	cactggctac	540
gggatctccg	acaccagcct	cgaggagatc	ttcctgaagg	tgggtggagga	gtgtgctgcg	600

```
<210> 4
<211> 1986
<212> DNA
<213> Homo sapiens
```

<400> 4

ctttcttttag	aattttctcca	agaagtagtg	atgtgtgtca	aaatccagaa	gaaccagaag	60
gagaggatga	agatgttcag	atggaaagag	tgagaacagc	aaatgccttg	aattctacta	120
atttttagatga	gaagccagtc	atcattgcc	gctgtctacg	caaggagtat	gcagggaaga	180
ggaaaaggctg	tttttccaag	aggaagaata	agatagccac	gagaaatgtc	tccttctgtg	240
ttagaaaagg	tgaagtttta	ggattattag	gacacaatgg	agctggtaaa	agcacatcca	300
ttaaggatgat	aactggagac	acaaaaccaa	ctgctggaca	agtgtacttg	aaagggagcg	360
gtggagggga	tgccctggag	ttcctggggg	actgccctca	ggagaacgcg	ctgtggccta	420
acctgacagt	gaggcagcac	ctggaggtgt	acgcgcgcgt	gaaagggctg	aggaaagggg	480
atgctgaggt	tgccatcaca	cggtttagtg	atgcgctcaa	gctgcaggac	cagctgaagt	540
ctccggtgaa	gacctgtgtca	gaggggaataa	agagaaaagct	gtgctttgtc	ctgagcatac	600
tggggaaccc	gtcagtgggtg	cttctggatg	agccgtcgac	cgggatggac	cccagggggc	660
agcagcaaat	gtggcaggcc	atccggggcca	ccttttagaaa	cacggaaagg	ggtgccctcc	720
taaccaccca	ctacatggca	gaggctgagg	ccgtgtgtga	ccgagtggcc	atcatggtat	780
ctgggaggtt	gagatgtatc	ggttccatcc	aacacctgaa	aagcaaat	ggcaaagatt	840
acctgctgga	gatgaagggtg	aagaacctgg	cacaagtgg	gccccctccat	gcagagatcc	900
tgaggctttt	ccccaggtc	gctcggcagg	aaaggtactc	ctctctgatg	gtttataagt	960
tgccagtggga	agatgtgcaa	ccttttagccc	aagctttctt	caaattagag	aaggttaaac	1020
agagcttttga	cctagaggag	tacagcctct	cacagtctac	cctggagcag	gttttctctg	1080
agctctccaa	ggagcaggag	ctgggtgatt	ttgaggagga	ttttgatccc	tcagtgaagt	1140
ggaagctcct	ccccaggaa	gagccttaaa	accccaaat	ctgtgttcct	gtttaaaccc	1200
gtgggtttttt	ttaaatacat	ttatttttat	agcagcaatg	ttctattttt	agaaactata	1260
ttataagtac	agaaatggtt	ctccgtgtgg	tgggaggagg	aggttcgggt	gctgggtaag	1320
tgccatgtca	gtgtggacag	aggcatttga	ctaagccaac	ctcctctcac	agcctctgta	1380
tctctgcagg	ccatactggt	tccattgttc	tgtataatac	tgaataaata	aatttacttt	1440
tacatgatcg	tataagtttc	tagataagat	aaacaaat	tgtttaaatt	tttttaataa	1500
aaatcttaaa	acactttttt	tctaacttag	actgagaaat	tcattgtttac	ttttctaggt	1560
gtatgatact	ttgtaaagtt	gatactttcc	taagaattta	acatgtcata	tttttgaaat	1620
agattttaagt	gtgcttctta	ttgctaaaaa	tactaaatgt	catgggtcat	agtatctgat	1680
atcaatatcg	ttgataacat	atccacagg	aacaccatga	tgtaggcata	aatggaaaac	1740
aaaaacccta	ctatttcaaa	tatattgtac	ttttttat	ctgtaagcca	actgtgtgcc	1800
attttcaactg	gactttttaa	tctagacttt	agtgatgtct	acattgtaaa	tgatcttttg	1860
tggatattttg	tcacttggtt	tcagaaagtt	cacaaatgta	gcaacagctc	acatgactga	1920
gtaggtagaa	aatgtgaaat	aaatctcata	tatatagttt	tgaaataaaa	aaaaaaaaaa	1980
aaaaaa						1986

<210> 5

<211> 2079

<212> DNA

<213> Homo sapiens

<400> 5

ggcacgagta	gatttagaca	tgcagactat	caaagataac	caagctaaaa	aattaagtgg	60
tggtcaaaaa	agaaagctgt	cattaggaat	tgctgttctt	gggaacccaa	agatactgct	120
gctagatgaa	ccaacagctg	gaatggaccc	ctgtttctcg	catattgtat	ggaatctttt	180
aaaatacaga	aaagccaatc	gggtgacagt	gttcagtact	catttcatgg	atgaagctga	240
cattcttgca	ggtgagattt	ttgttttatt	ttcgaaggct	gagatcatgg	gccaaaagga	300
agatggatat	agagatgcta	attcctgagg	tataaataga	gaagctttta	cctagtggta	360
tgtttccttc	acaaaaaaag	ttctaaaaaa	ttttaaaatg	atacattttt	gtgttgagaa	420
tctccaagac	catcccaggt	ttagtgatgt	cctagaagaa	ctcatatgac	tcagcacata	480
gtcatactca	tgactatgat	ttattacagc	aaaaggatac	aaagctaagt	tagcaaaggg	540
aaaaggata	tgaggcaaag	tctcgaggaa	accaggtaga	agcttccaag	agtcctactc	600
ccagtggagt	agacagatgt	gctttaattt	cttcagcatt	gagttgtaac	aacatgtgtg	660
aaatatctac	ttgggaaagt	tagtatatac	tcagtgttca	agattcttat	tgggtgctga	720
tcacataaac	atcttctgcc	tagcacatac	caaagttcca	gattctcaga	aggaaagaag	780
ttgtttggca	taaaccacat	tgtttgtaca	gttttaggcac	tgagccactc	ttacctgttt	840
tgagaatagt	aggaaccctc	ccaaatccaa	gttctcaact	aacagccaag	ggccaacctt	900

gtaagcaggc	ctttctaagg	atagaagcct	ctgacctgct	atgttaactc	ttttctgcac	960
aatttttatac	acatacatat	atataaagaa	tccaagttga	agtcaacaca	tgactttttaa	1020
tagctatgac	agatatagaa	gtttgaaatt	cttgagcaac	ttctgtctgc	ttataatata	1080
atctaataaaa	attgggcaag	tcattcatgt	cttcagtagt	acctttatctt	ttaaaaaccc	1140
aacaaactaa	catttggttct	tcttattact	tttggttgatt	tttggagttg	tttctacatt	1200
tgggtataaaa	ggaaattgtg	aaagtgcctg	tattgggtaag	ccttttagga	aaaatatatt	1260
tgggaataaca	tatggtaagt	agactctaga	gtcagactcc	ttgagtagag	ttcctggcct	1320
tgttacttaa	tagctgtatg	aaacatatat	aaggaatgta	ttttcttttt	accttagtat	1380
tcataatctga	aaaatagttg	atgataatct	agtaccatcc	tcataagact	ttttgtgatg	1440
attaatgata	tcataatgtg	gatgactctc	atatgagaaa	ccataaaaatg	taaatgccaa	1500
ttattaatgc	tgttgatact	ttagaaattg	aaatgtaaat	atttatctgc	agataggaaa	1560
gctgtgatat	cacaaggaat	gctgaaatgt	gttggttctt	caatgttcct	caaaagtaaa	1620
tgggggatcg	gctaccgcct	gagcatgtac	atagacaaat	attgtgccac	agaatctctt	1680
tcttctactgg	ttaaacaaca	tatacctgga	gctactttat	tacaacagaa	tgaccaacaa	1740
cttgtgtata	gcttgccctt	caaggacatg	gacaaatctt	caggtattac	ttactttaag	1800
tctcttggtg	tttgaactgg	gatcctatat	tgggaatagg	tttcattgat	ttcctttttg	1860
tttcctttctc	catgtagtat	tgccatgctc	ccaggtggcc	agagttaata	ttctgtttct	1920
gcttttatttt	gtttttgaaa	gccagaaaaa	acacagcaaa	attttttttt	tacaaacacc	1980
atgcaagaaa	ctgtaactaa	tatatataat	acttaagaaa	atgttaaaaa	acgtaaaaat	2040
aattgtgttt	actttgttgt	caaaaaaaaa	aaaaaaaaa			2079

<210> 6

<211> 1516

<212> DNA

<213> Homo sapiens

<400> 6

tgatactcct	gttgaggagc	catttgaagt	ctgagagttt	ccaggtgtct	ggaaatgaag	60
aagatgttca	agctgaaaga	gtccaagcag	caaatgcact	cactactcca	aacttggagg	120
aggaaccagt	cataactgca	agctgtttac	acaaggaata	ttatgagaca	aagaaagttg	180
cttttcaaca	acaaagaaga	aagcagccat	cagaaatggt	tcgttttgtg	ttaaaaagtg	240
aagttttggg	attactagga	cacaatggag	ctggcaaaaag	tacttccatt	aaaatgataa	300
ctgggtgcac	agtgcgaact	gcaggagtgg	tgggtgtaca	aggcaacaga	gcatcagtaa	360
ggcaacagcg	tgacaacagc	ctcaagttct	tgggtactgc	cctcaggaga	actcactgtg	420
tcccaaaactt	acaatgaaag	agcatttgga	gttgatgca	gccgtgaaag	gactgggcaa	480
agatgctgct	cttagtattt	catgattggg	ggaagctctc	aagctccagg	agcaacttaa	540
ggctcccgtg	aaaactctat	cagagggaat	aaagagaaaag	ctatgcttcg	tgctgagcat	600
actgggggaac	ccatcagtgg	tgcttctaga	cgagctgttc	accgggatgg	accctgaggg	660
gcagcagcaa	atgtggcaga	tacttcaggc	taccattaaa	aaccaggaga	ggggcgccct	720
cttgaccacc	cattacatgt	cagaggctaa	gtctctgtgt	gaccgtgtgg	ccatcatggt	780
gtcaggaacg	ctaaggtgta	ttggttccat	tcaacagctg	aaaagtttgg	taaagattat	840
ttactagaaa	taaaaatgaa	agaacctact	caggtggaag	ctctccacac	agagattttg	900
aagctttttcc	cacaggctgc	ttggcaggaa	agatattcct	ctttaatggc	atgtaagtta	960
cctgtggagg	atgtccaccc	tctgtctcag	gcctttttca	aattaaaggc	agtgaacacag	1020
accttcaacc	tggagggaata	cagcctctct	caggctacct	tggagcagggt	gttcttagaa	1080
ctctgtaaaag	agcaggcgct	gggaaatggt	gatgataaaa	ttgatataac	agttcgatgg	1140
aaactttctcc	cacgggaaga	ttcttaaaac	gaagaacctc	ctaacattca	attttaagtc	1200
ctactgcatt	attagtttcc	ataattctac	aagaatgttt	ccttttactt	cagttaacaa	1260
aagaaaaatat	tcaatagttt	aaacatgcaa	caatgattaa	agttttcatt	tttaaaaatt	1320
ttaggatgaa	ggaaacaagg	aaatataggg	aaaagtagca	gacaaaatta	acaaactcag	1380
acatgttatt	catccccaac	atgggtctat	tttgtgctta	aaaataattt	taaaatcata	1440
aaatattagg	tttgtttttg	gttattatca	ataaagttaa	cactgagcac	attttacaaa	1500
aaaaaaaaaa	aaaaaa					1516

<210> 7

<211> 300

<212> DNA

<213> Homo sapiens

<400> 7

ccacgcgtcc	gcggacgcgt	gggcgagaag	acgacagaag	ggtacggctg	cgaggagacg	60
acagaaggga	gaatcactct	tgcaagattg	atgtatacag	aacctaaatt	tattatttta	120
gatgaagtat	ttgctaactt	ggacaaaaat	aacgccgata	acataaaaaga	aaaactttta	180
cttgatccta	acttaaccat	tattatgggt	agtcatcatc	ttgatgcaaa	agatagaaaa	240
tactttgatc	aaattattga	ttttaatact	ttataatata	aaaaaaaaaa	aaaaaaaaaa	300

<210> 8

<211> 709

<212> PRT

<213> Homo sapiens

<400> 8

Met	Ala	Thr	Cys	Ala	Glu	Ile	Leu	Arg	Ser	Glu	Phe	Pro	Glu	Ile	Asp	1	5	10	15
Gly	Gln	Val	Phe	Asp	Tyr	Val	Thr	Gly	Val	Leu	His	Ser	Gly	Ser	Ala	20	25	30	
Asp	Phe	Glu	Ser	Val	Asp	Asp	Leu	Val	Glu	Ala	Val	Gly	Glu	Leu	Leu	35	40	45	
Gln	Glu	Val	Ser	Gly	Asp	Ser	Lys	Asp	Asp	Ala	Gly	Ile	Arg	Ala	Val	50	55	60	
Cys	Gln	Arg	Met	Tyr	Asn	Thr	Leu	Arg	Leu	Ala	Glu	Pro	Gln	Ser	Gln	65	70	75	80
Gly	Asn	Ser	Gln	Val	Leu	Leu	Asp	Ala	Pro	Ile	Gln	Leu	Ser	Lys	Ile	85	90	95	
Thr	Glu	Asn	Tyr	Asp	Cys	Gly	Thr	Lys	Leu	Pro	Gly	Leu	Leu	Lys	Arg	100	105	110	
Glu	Gln	Ser	Ser	Thr	Val	Asn	Ala	Lys	Lys	Leu	Glu	Lys	Ala	Glu	Ala	115	120	125	
Arg	Leu	Lys	Ala	Lys	Gln	Glu	Lys	Arg	Ser	Glu	Lys	Asp	Thr	Leu	Lys	130	135	140	
Thr	Ser	Asn	Pro	Leu	Val	Leu	Glu	Glu	Ala	Ser	Ala	Ser	Gln	Ala	Gly	145	150	155	160
Ser	Arg	Lys	Glu	Ser	Arg	Leu	Glu	Ser	Ser	Gly	Lys	Asn	Lys	Ser	Tyr	165	170	175	
Asp	Val	Arg	Ile	Glu	Asn	Phe	Asp	Val	Ser	Phe	Gly	Asp	Arg	Val	Leu	180	185	190	
Leu	Ala	Gly	Ala	Asp	Val	Asn	Leu	Ala	Trp	Gly	Arg	Arg	Tyr	Gly	Leu	195	200	205	
Val	Gly	Arg	Asn	Gly	Leu	Gly	Lys	Thr	Thr	Leu	Leu	Lys	Met	Leu	Ala	210	215	220	

Thr Arg Ser Leu Arg Val Pro Ala His Ile Ser Leu Leu His Val Glu
 225 230 235 240
 Gln Glu Val Ala Gly Asp Asp Thr Pro Ala Leu Gln Ser Val Leu Glu
 245 250 255
 Ser Asp Ser Val Arg Glu Asp Leu Leu Arg Arg Glu Arg Glu Leu Thr
 260 265 270
 Ala Gln Ile Ala Ala Gly Arg Ala Glu Gly Ser Glu Ala Ala Glu Leu
 275 280 285
 Ala Glu Ile Tyr Ala Lys Leu Glu Glu Ile Glu Ala Asp Lys Ala Pro
 290 295 300
 Ala Arg Ala Ser Val Ile Leu Ala Gly Leu Gly Phe Thr Pro Lys Met
 305 310 315 320
 Gln Gln Gln Pro Thr Arg Glu Phe Ser Gly Gly Trp Arg Met Arg Leu
 325 330 335
 Ala Leu Ala Arg Ala Leu Phe Ala Arg Pro Asp Leu Leu Leu Leu Asp
 340 345 350
 Glu Pro Thr Asn Met Leu Asp Val Arg Ala Ile Leu Trp Leu Glu Asn
 355 360 365
 Tyr Leu Gln Thr Trp Pro Ser Thr Ile Leu Val Val Ser His Asp Arg
 370 375 380
 Asn Phe Leu Asn Ala Ile Ala Thr Asp Ile Ile His Leu His Ser Gln
 385 390 395 400
 Arg Leu Asp Gly Tyr Arg Gly Asp Phe Glu Thr Phe Ile Lys Ser Lys
 405 410 415
 Gln Glu Arg Leu Leu Asn Gln Gln Arg Glu Tyr Glu Ala Gln Gln Gln
 420 425 430
 Tyr Arg Gln His Ile Gln Val Phe Ile Asp Arg Phe Arg Tyr Asn Ala
 435 440 445
 Asn Arg Ala Ser Gln Val Gln Ser Lys Leu Lys Met Leu Glu Lys Leu
 450 455 460
 Pro Glu Leu Lys Pro Val Asp Lys Glu Ser Glu Val Val Met Lys Phe
 465 470 475 480
 Pro Asp Gly Phe Glu Lys Phe Ser Pro Pro Ile Leu Gln Leu Asp Glu
 485 490 495
 Val Asp Phe Tyr Tyr Asp Pro Lys His Val Ile Phe Ser Arg Leu Ser
 500 505 510
 Val Ser Ala Asp Leu Glu Ser Arg Ile Cys Val Val Gly Glu Asn Gly
 515 520 525

Ser Phe Val Pro Ala Ser Phe Thr Leu Val Leu Ile Glu Glu Arg Val
65 70 75 80

Thr Arg Ala Lys His Leu Gln Leu Met Gly Gly Leu Ser Pro Thr Leu
 85 90 95
 Tyr Trp Leu Gly Asn Phe Leu Trp Asp Met Cys Asn Tyr Leu Val Pro
 100 105 110
 Ala Cys Ile Val Val Leu Ile Phe Leu Ala Phe Gln Gln Arg Ala Tyr
 115 120 125
 Val Ala Pro Ala Asn Leu Pro Ala Leu Leu Leu Leu Leu Leu Tyr
 130 135 140
 Gly Trp Ser Ile Thr Pro Leu Met Tyr Pro Ala Ser Phe Phe Phe Ser
 145 150 155 160
 Val Pro Ser Thr Ala Tyr Val Val Leu Thr Cys Ile Asn Leu Phe Ile
 165 170 175
 Gly Ile Asn Gly Ser Met Ala Thr Phe Val Leu Glu Leu Phe Ser Asp
 180 185 190
 Gln Lys Leu Gln Glu Val Ser Arg Ile Leu Lys Gln Val Phe Leu Ile
 195 200 205
 Phe Pro His Phe Cys Leu Gly Arg Gly Leu Ile Asp Met Val Arg Asn
 210 215 220
 Gln Ala Met Ala Asp Ala Phe Glu Arg Leu Gly Asp Arg Gln Phe Gln
 225 230 235 240
 Ser Pro Leu Arg Trp Glu Val Val Gly Lys Asn Leu Leu Ala Met Val
 245 250 255
 Ile Gln Gly Pro Leu Phe Leu Leu Phe Thr Leu Leu Leu Gln His Arg
 260 265 270
 Ser Gln Leu Leu Pro Gln Pro Arg Val Arg Ser Leu Pro Leu Leu Gly
 275 280 285
 Glu Glu Asp Glu Asp Val Ala Arg Glu Arg Glu Arg Val Val Gln Gly
 290 295 300
 Ala Thr Gln Gly Asp Val Leu Val Leu Arg Asn Leu Thr Lys Val Tyr
 305 310 315 320
 Arg Gly Gln Arg Met Pro Ala Val Asp Arg Leu Cys Leu Gly Ile Pro
 325 330 335
 Pro Gly Glu Cys Phe Gly Leu Leu Gly Val Asn Gly Ala Gly Lys Thr
 340 345 350
 Ser Thr Phe Arg Met Val Thr Gly Asp Thr Leu Ala Ser Arg Gly Glu
 355 360 365
 Ala Val Leu Ala Gly His Ser Val Ala Arg Glu Pro Ser Ala Ala His
 370 375 380
 Leu Ser Met Gly Tyr Cys Pro Gln Ser Asp Ala Ile Phe Glu Leu Leu

385		390		395		400
Thr Gly Arg Glu His Leu Glu Leu Leu Ala Arg Leu Arg Gly Val Pro						
		405		410		415
Glu Ala Gln Val Ala Gln Thr Ala Gly Ser Gly Leu Ala Arg Leu Gly						
		420		425		430
Leu Ser Trp Tyr Ala Asp Arg Pro Ala Gly Thr Tyr Ser Gly Gly Asn						
		435		440		445
Lys Arg Lys Leu Ala Thr Ala Leu Ala Leu Val Gly Asp Pro Ala Val						
		450		455		460
Val Phe Leu Asp Glu Pro Thr Thr Gly Met Asp Pro Ser Ala Arg Arg						
		465		470		475
						480
Phe Leu Trp Asn Ser Leu Leu Ala Val Val Arg Glu Gly Arg Ser Val						
		485		490		495
Met Leu Thr Ser His Ser Met Glu Glu Cys Glu Ala Leu Cys Ser Arg						
		500		505		510
Leu Ala Ile Met Val Asn Gly Arg Phe Arg Cys Leu Gly Ser Pro Gln						
		515		520		525
His Leu Lys Gly Arg Phe Ala Ala Gly His Thr Leu Thr Leu Arg Val						
		530		535		540
Pro Ala Ala Arg Ser Gln Pro Ala Ala Ala Phe Val Ala Ala Glu Phe						
		545		550		555
						560
Pro Gly Ala Glu Leu Arg Glu Ala His Gly Gly Arg Leu Arg Phe Gln						
		565		570		575
Leu Pro Pro Gly Gly Arg Cys Ala Leu Ala Arg Val Phe Gly Glu Leu						
		580		585		590
Ala Val His Gly Ala Glu His Gly Val Glu Asp Phe Ser Val Ser Gln						
		595		600		605
Thr Met Leu Glu Glu Val Phe Leu Tyr Phe Ser Lys Asp Gln Gly Lys						
		610		615		620
Asp Glu Asp Thr Glu Glu Gln Lys Glu Ala Gly Val Gly Val Asp Pro						
		625		630		635
						640
Ala Pro Gly Leu Gln His Pro Lys Arg Val Ser Gln Phe Leu Asp Asp						
		645		650		655
Pro Ser Thr Ala Glu Thr Val Leu						
		660				

<210> 10

<211> 362

<212> PRT

<213> Homo sapiens

<400> 10

Met	Glu	Arg	Val	Arg	Thr	Ala	Asn	Ala	Leu	Asn	Ser	Thr	Asn	Phe	Asp
1				5					10					15	
Glu	Lys	Pro	Val	Ile	Ile	Ala	Ser	Cys	Leu	Arg	Lys	Glu	Tyr	Ala	Gly
			20					25					30		
Lys	Arg	Lys	Gly	Cys	Phe	Ser	Lys	Arg	Lys	Asn	Lys	Ile	Ala	Thr	Arg
		35					40					45			
Asn	Val	Ser	Phe	Cys	Val	Arg	Lys	Gly	Glu	Val	Leu	Gly	Leu	Leu	Gly
	50					55					60				
His	Asn	Gly	Ala	Gly	Lys	Ser	Thr	Ser	Ile	Lys	Val	Ile	Thr	Gly	Asp
65					70					75					80
Thr	Lys	Pro	Thr	Ala	Gly	Gln	Val	Leu	Leu	Lys	Gly	Ser	Gly	Gly	Gly
				85				90						95	
Asp	Ala	Leu	Glu	Phe	Leu	Gly	Tyr	Cys	Pro	Gln	Glu	Asn	Ala	Leu	Trp
		100						105					110		
Pro	Asn	Leu	Thr	Val	Arg	Gln	His	Leu	Glu	Val	Tyr	Ala	Ala	Val	Lys
	115					120						125			
Gly	Leu	Arg	Lys	Gly	Asp	Ala	Glu	Val	Ala	Ile	Thr	Arg	Leu	Val	Asp
130					135						140				
Ala	Leu	Lys	Leu	Gln	Asp	Gln	Leu	Lys	Ser	Pro	Val	Lys	Thr	Leu	Ser
145				150					155					160	
Glu	Gly	Ile	Lys	Arg	Lys	Leu	Cys	Phe	Val	Leu	Ser	Ile	Leu	Gly	Asn
			165					170					175		
Pro	Ser	Val	Val	Leu	Leu	Asp	Glu	Pro	Ser	Thr	Gly	Met	Asp	Pro	Glu
		180					185						190		
Gly	Gln	Gln	Gln	Met	Trp	Gln	Ala	Ile	Arg	Ala	Thr	Phe	Arg	Asn	Thr
	195					200						205			
Glu	Arg	Gly	Ala	Leu	Leu	Thr	Thr	His	Tyr	Met	Ala	Glu	Ala	Glu	Ala
210					215					220					
Val	Cys	Asp	Arg	Val	Ala	Ile	Met	Val	Ser	Gly	Arg	Leu	Arg	Cys	Ile
225				230						235				240	
Gly	Ser	Ile	Gln	His	Leu	Lys	Ser	Lys	Phe	Gly	Lys	Asp	Tyr	Leu	Leu
			245					250					255		
Glu	Met	Lys	Val	Lys	Asn	Leu	Ala	Gln	Val	Glu	Pro	Leu	His	Ala	Glu
		260				265						270			
Ile	Leu	Arg	Leu	Phe	Pro	Gln	Ala	Ala	Arg	Gln	Glu	Arg	Tyr	Ser	Ser
	275					280						285			
Leu	Met	Val	Tyr	Lys	Leu	Pro	Val	Glu	Asp	Val	Gln	Pro	Leu	Ala	Gln
290					295						300				

Lys Leu Lys Ala Val Lys Gln Thr Phe Asn Leu Glu Glu Tyr Ser Leu

50 55 60

Ser Gln Ala Thr Leu Glu Gln Val Phe Leu Glu Leu Cys Lys Glu Gln
65 70 75 80

Ala Leu Gly Asn Val Asp Asp Lys Ile Asp Ile Thr Val Arg Trp Lys
 85 90 95

Leu Leu Pro Arg Glu Asp Ser
 100

<210> 13
<211> 91
<212> PRT
<213> Homo sapiens

<400> 13
Pro Arg Val Arg Gly Arg Val Gly Glu Lys Thr Thr Glu Gly Tyr Gly
1 5 10 15

Cys Glu Glu Thr Thr Glu Gly Arg Ile Thr Leu Ala Arg Leu Met Tyr
 20 25 30

Thr Glu Pro Lys Phe Ile Ile Leu Asp Glu Val Phe Ala Asn Leu Asp
 35 40 45

Lys Asn Asn Ala Asp Asn Ile Lys Glu Lys Leu Leu Leu Asp Pro Asn
 50 55 60

Leu Thr Ile Ile Met Val Ser His His Leu Asp Ala Lys Asp Arg Lys
65 70 75 80

Tyr Phe Asp Gln Ile Ile Asp Phe Asn Thr Leu
 85 90

<210> 14
<211> 8
<212> PRT
<213> Homo sapiens

<400> 14
Gly Arg Asn Gly Leu Gly Lys Thr
1 5

<210> 15
<211> 8
<212> PRT
<213> Homo sapiens

<400> 15
Gly Glu Asn Gly Ala Gly Lys Ser
1 5

<210> 16

```
<400> 16
Gly Val Asn Gly Ala Gly Lys Thr
  1             5
```

<400>	17															
Ala	Gln	Val	Val	Ile	Leu	Asp	Glu	Pro	Thr	Ala	Gly	Val	Asp	Pro	Ala	
1				5					10					15		
Ser	Arg	Arg	Gly	Ile	Trp	Glu	Leu	Leu	Leu	Lys	Tyr	Arg	Glu	Gly	Arg	
			20					25					30			
Thr	Leu	Ile	Leu	Ser	Thr	His	His	Leu	Asp	Glu	Ala	Glu	Leu	Leu	Gly	
		35					40					45				
Asp	Arg	Val	Ala	Val	Val	Ala	Gly	Gly	Arg	Leu	Cys	Cys	Cys	Gly	Ser	
	50					55					60					
Pro	Leu	Phe	Leu	Arg	Arg	His	Leu	Gly	Ser	Gly	Tyr	Tyr	Leu	Thr	Leu	
65					70					75					80	
Val	Lys	Ala	Arg	Leu	Pro	Leu	Thr	Thr	Asn	Glu	Lys	Ala	Asp	Thr	Asp	
				85					90					95		
Met	Glu	Gly	Ser	Val	Asp	Thr	Arg	Gln	Glu	Lys	Lys	Asn	Gly	Ser	Gln	
			100					105					110			
Gly	Ser	Arg	Val	Gly	Thr	Pro	Gln	Leu	Leu	Ala	Leu	Val	Gln	His	Trp	
		115					120					125				
Val	Pro	Gly	Ala	Arg	Leu	Val	Glu	Glu	Leu	Pro	His	Glu	Leu	Val	Leu	
	130					135					140					
Val	Leu	Pro	Tyr	Thr	Gly	Ala	His	Asp	Gly	Ser	Phe	Ala	Thr	Leu	Phe	
145					150					155					160	
Arg	Glu	Leu	Asp	Thr	Arg	Leu	Ala	Glu	Leu	Arg	Leu	Thr	Gly	Tyr	Gly	
				165					170					175		
Ile	Ser	Asp	Thr	Ser	Leu	Glu	Glu	Ile	Phe	Leu	Lys	Val	Val	Glu	Glu	
			180					185					190			
Cys	Ala	Ala	Asp	Thr	Asp	Met	Glu	Asp	Gly	Ser	Cys	Gly	Gln	His	Leu	
	195						200					205				
Cys	Thr	Gly	Ile	Ala	Gly	Leu	Asp	Val	Thr	Leu	Arg	Leu	Lys	Met	Pro	
	210					215					220					
Pro	Gln	Glu	Thr	Ala	Leu	Glu	Asn	Gly	Glu	Pro	Ala	Gly	Ser	Ala	Pro	

```

<210> 18
<211> 199
<212> PRT
<213> Homo sapiens

<400> 18
Ser Glu Asp Ala Pro Gly Asp Pro Gly Arg Ala Arg Leu Leu Glu Ala
 1          5          10          15
Leu Leu Gln Glu Ala Gly Leu Glu Glu Pro Pro Val Gln His Ser Ser
          20          25          30
His Arg Phe Ser Ala Pro Glu Val Pro Ala Glu Val Ala Lys Val Leu
          35          40          45
Ala Ser Gly Asn Trp Thr Pro Glu Ser Pro Ser Pro Ala Cys Gln Cys
          50          55          60
Ser Arg Pro Gly Ala Arg Arg Leu Leu Pro Asp Cys Pro Ala Ala Ala
 65          70          75          80
Gly Gly Pro Pro Pro Pro Gln Ala Val Thr Gly Ser Gly Glu Val Val
          85          90          95
Gln Asn Leu Thr Gly Arg Asn Leu Ser Asp Phe Leu Val Lys Thr Tyr
          100          105          110
Pro Arg Leu Val Arg Gln Gly Leu Lys Thr Lys Lys Trp Val Asn Glu
          115          120          125
Val Arg Tyr Gly Gly Phe Ser Leu Gly Gly Arg Asp Pro Gly Leu Pro
          130          135          140
Ser Gly Gln Glu Leu Gly Arg Ser Val Glu Glu Leu Trp Ala Leu Leu
145          150          155          160
Ser Pro Leu Pro Gly Gly Ala Leu Asp Arg Val Leu Lys Asn Leu Thr
          165          170          175
Ala Trp Ala His Ser Leu Asp Ala Gln Asp Ser Leu Lys Ile Trp Phe
          180          185          190
Asn Asn Lys Gly Trp His Ser
          195

```

Asn Asn Lys Gly Trp His Ser
195

<210> 19
 <211> 8
 <212> PRT
 <213> Homo sapiens

<400> 19
 Gly His Asn Gly Ala Gly Lys Ser
 1 5

<210> 20
 <211> 15
 <212> PRT
 <213> Homo sapiens

<400> 20
 Leu Ser Gly Gly Gln Lys Arg Lys Leu Ser Leu Gly Ile Ala Val
 1 5 10 15

<210> 21
 <211> 73
 <212> PRT
 <213> Homo sapiens

<400> 21
 Asn Pro Ser Val Val Leu Leu Asp Glu Leu Phe Thr Gly Met Asp Pro
 1 5 10 15

Glu Gly Gln Gln Gln Met Trp Gln Ile Leu Gln Ala Thr Ile Lys Asn
 20 25 30

Gln Glu Arg Gly Ala Leu Leu Thr Thr His Tyr Met Ser Glu Ala Lys
 35 40 45

Ser Leu Cys Asp Arg Val Ala Ile Met Val Ser Gly Thr Leu Arg Cys
 50 55 60

Ile Gly Ser Ile Gln Gln Leu Lys Ser
 65 70